

Fig. 1

- 10 - Starting ceramic consisting of
base ceramic, for example
additives, for example
sacrificial phase, for example
primary hard material phase, for example
- 20 - Edge area or edge layer, for example

Fig. 3

- A - Powder compound
- B - Powder processing
Attritor grinding 7 h, 700 rpm, in acetone, X-TZP grinding balls
- C - Powder conditioning
Drying, screening
- D - Green body production
Pressing uniaxial
cold isostatic
- E - Reaction sintering
vacuum, after Argon rinsing
- F - Hard machining
grinding
- G - High-temperature isostatic pressing
- H - Cutting plate

Fig. 4

- Powder processing
- A Powder compound
- B Attritor grinding
Acetone, grinding balls, container
- C Drying/screening
- D Green body manufacturing

uniaxial pressing
cold isostatic pressing
E Reaction sintering
vacuum
pores
F Hard machining
G High-temperature isostatic pressing argon
H Cutting plate

Fig. 5

Junction area
Basic structure

Fig. 6

Scanning electron microscope photos
Element concentration

Fig. 7

Cutting time
Width of wear land
Travel of the cutting tool
sintered
reference - high-temperature pressed
Fractures
Cutting ceramic according to the invention
Cutting speed
Cutting depth
Forward feed

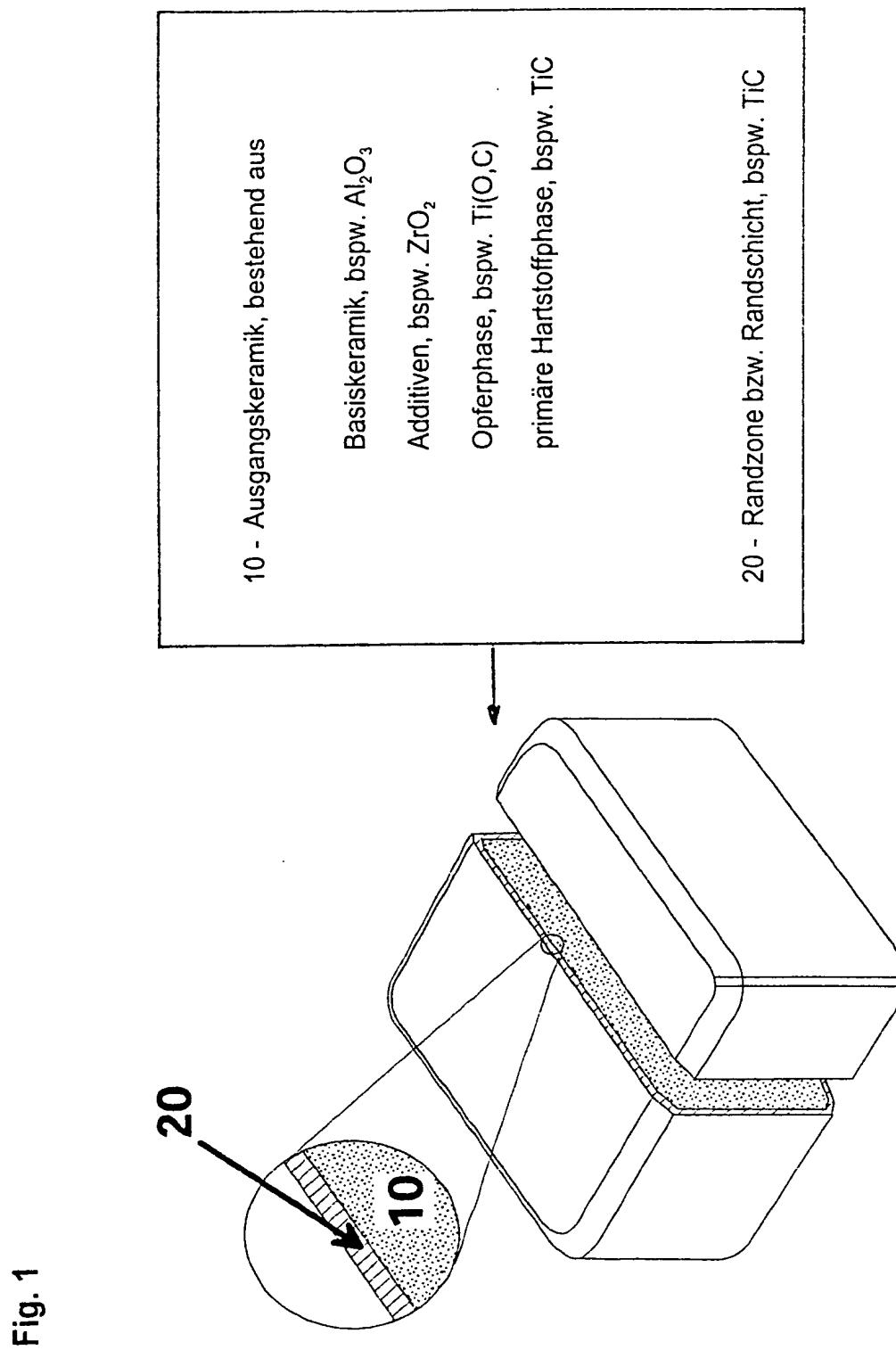


Fig. 1

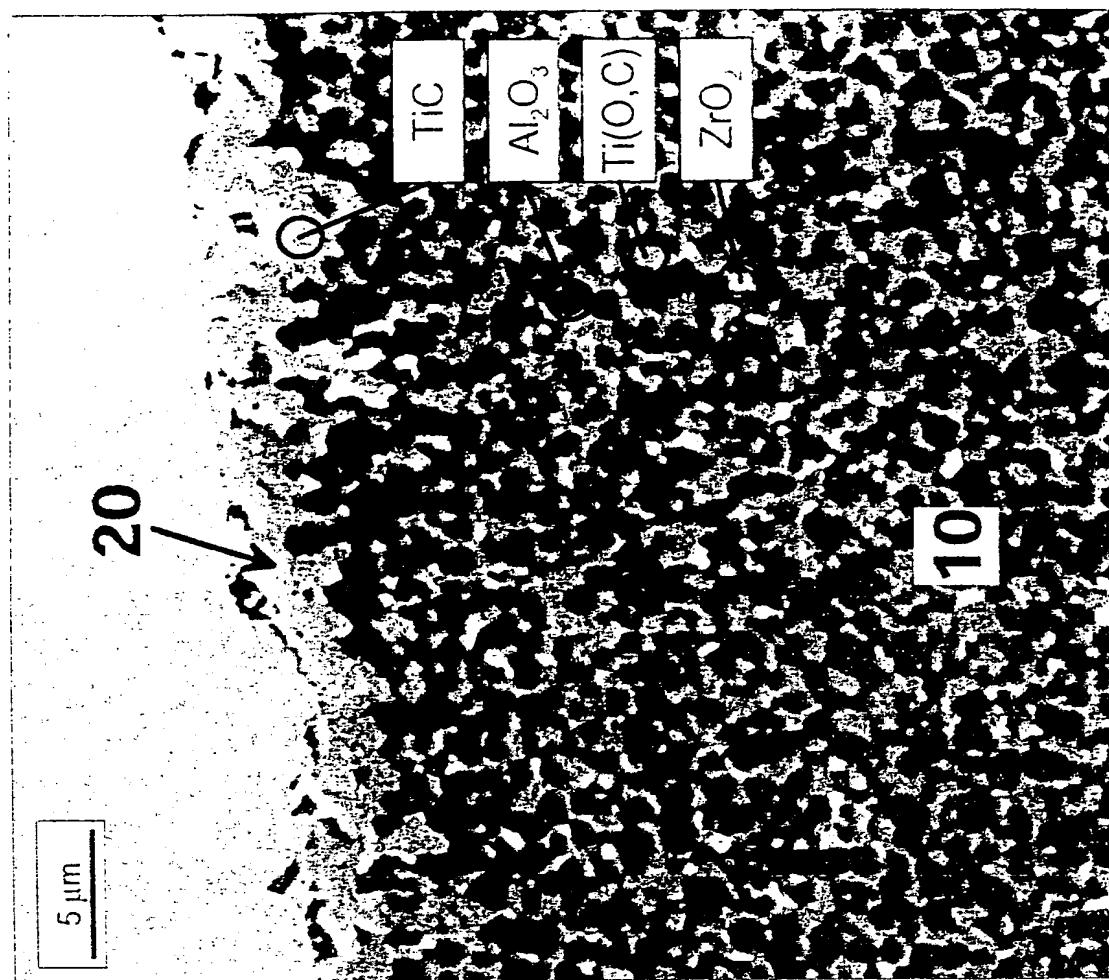


Fig. 2

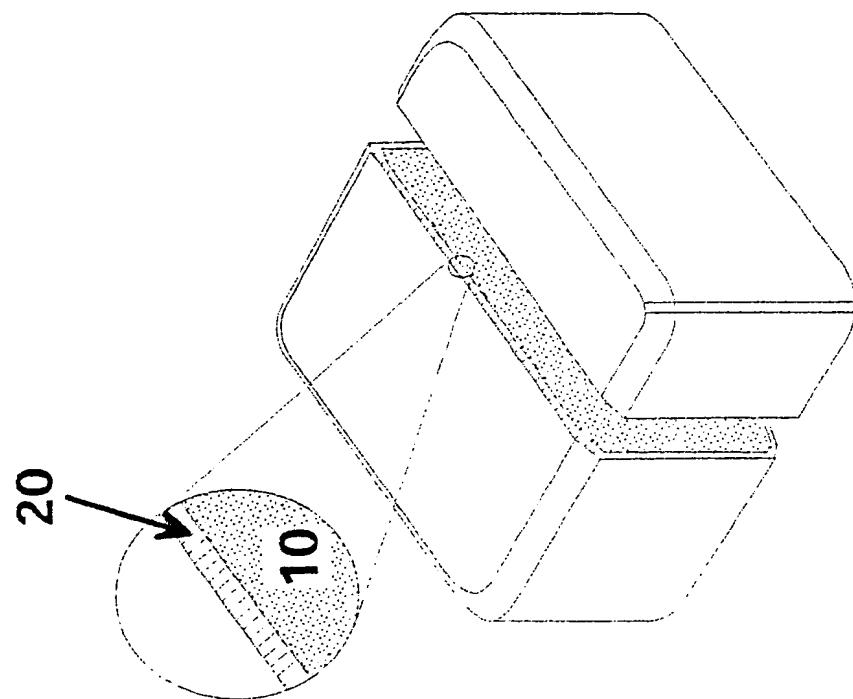


Fig. 3

A

Pulverversatz

35 Vol-% Al_2O_3 ; 15 Vol-% TiC;
21,5 Vol-% Al; 28,5 Vol-% TiO_2

B

Pulveraufbereitung

Attritieren:
7 h, 700 Ul/min , in Aceton,
Y-TZP-Mahlkugeln

C

Pulverkonditionierung

Trocknen, Sieben

D

Grünkörperherstellung

Pressen:
uniaxial 5 MPa
kalt-isostatisch 900 MPa

E

Reaktionssintern

1 h, 1625 °C,
Vakuum, nach Argon Spülung

F

Hartbearbeitung

Schleifen

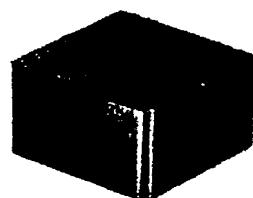
G

Heiß-isostatisch Pressen

10 min, 1625 °C, 200 MPa, Argon

H

Schneidplatte



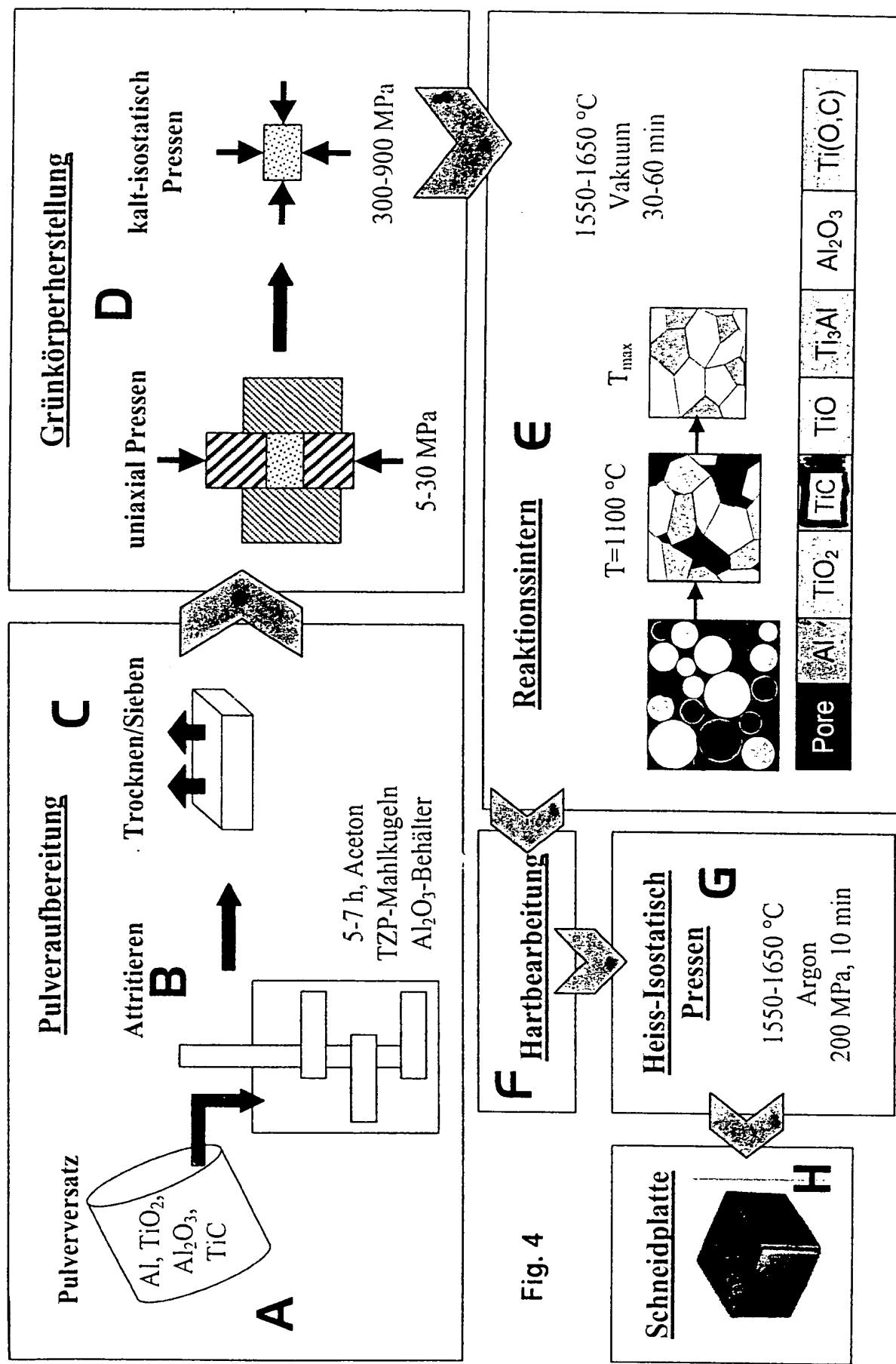
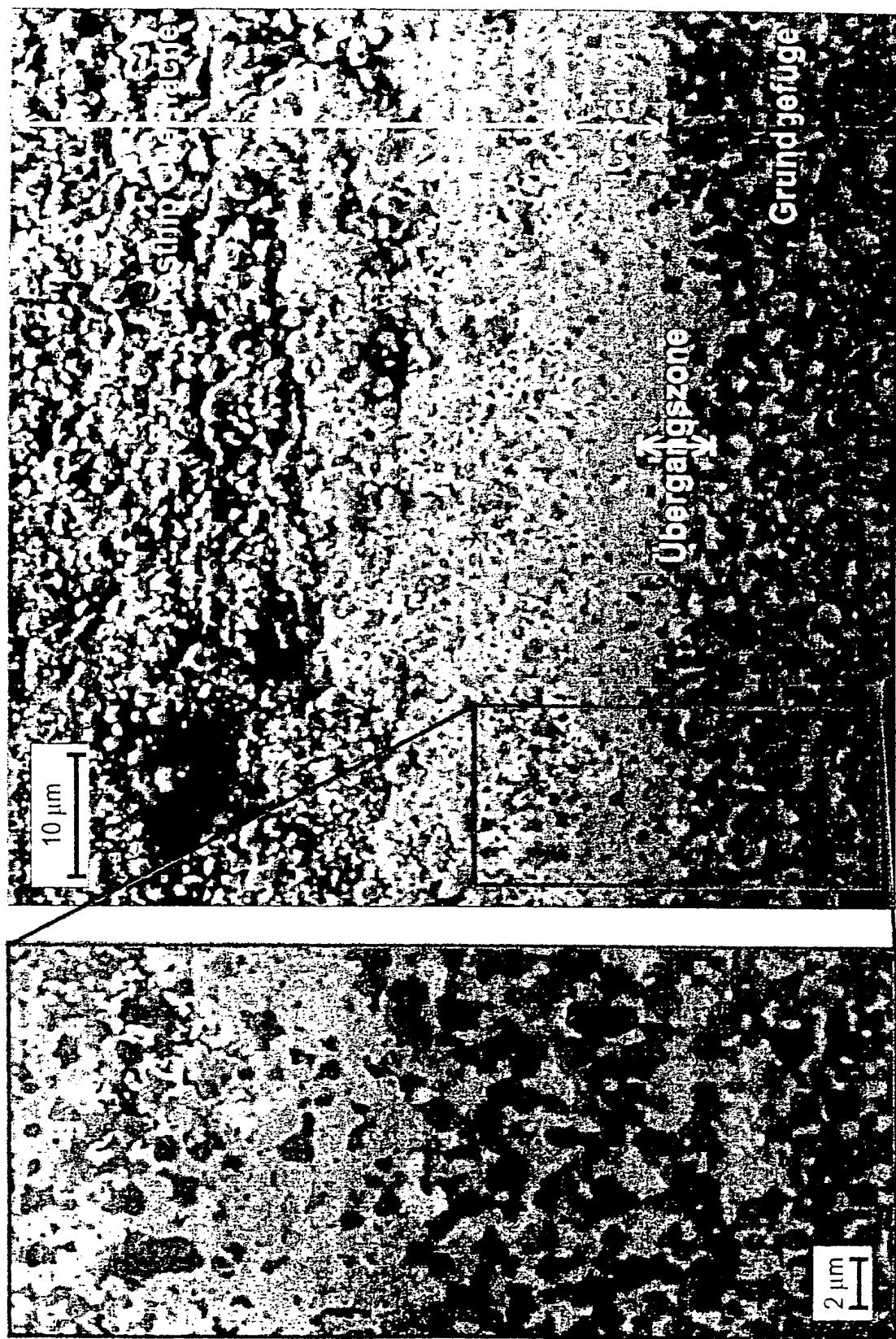


Fig. 5



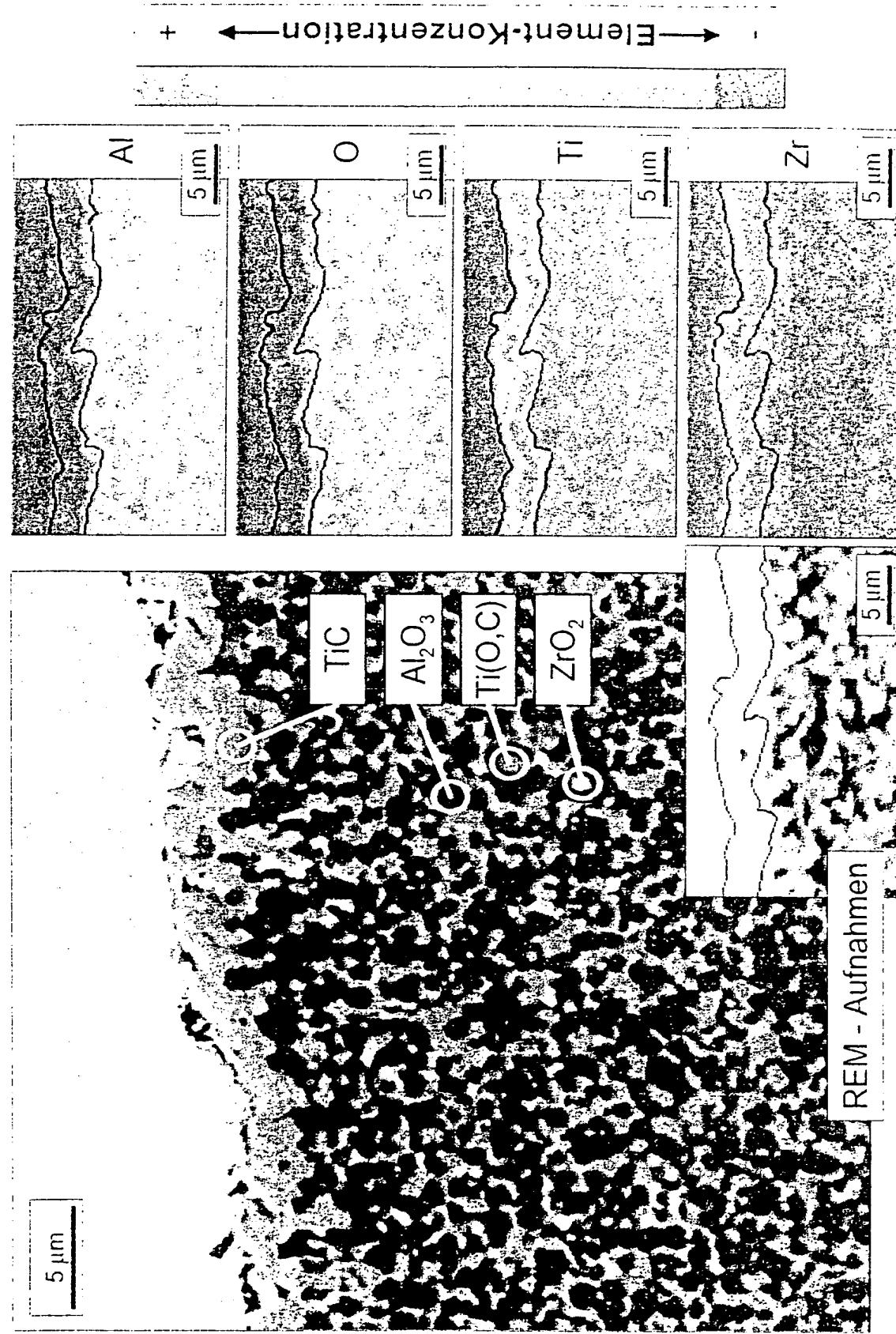


Fig. 6

Fig. 7

